PRE-REHABILITATION PLAN
Williams Lake (Spokane County)

I. PROPOSAL

A. Justification for Proposed Rehabilitation
Downstream emigration of undesirable fish species from Badger Lake and/or illegal introductions of the target species have compromised the trout fishery in Williams Lake to the point that it is no longer economically viable to support with fry plants, and catch rates are substandard. The rehab will restore this productive, popular and unique trout fishery.

B. Physical Description of Water Proposed for Rehabilitation

l. WATER: **Williams Lake**
2. LOCATION: Sec's 5, 6, 7, 8, 12, 13; T21N, T22N; R40E, R41E, Spokane County
3. SURFACE ACRES: 319 MAXIMUM DEPTH: 115 feet
4. VOLUME: 13,087 acre-feet; 35,572,894,157 pounds of water.
5. OUTLET: Yes, intermittent stream that flows to Downs Lake. Likely dry at time of treatment.
6. STREAM: Yes, intermittent. Likely dry at time of treatment.
7. PUBLIC ACCESS: Yes
8. LAND OWNERSHIP: Public 1%, Private 99%.
9. ESTABLISHED RESORTS: Two; Klink's Williams Lake Resort and Bunker's Resort.

C. Proposed Management Actions

1. WATER: **Williams Lake**
2. TARGET SPECIES: Largemouth Bass, Pumpkinseed Sunfish, Tench, Speckled Dace
3. DATE LAST REHABBED: October 2003
4. PROPOSED TREATMENT DATE: September-November, 2015
5. REPLANTING DATE: Spring 2016
6. SPECIES: rainbow trout, cutthroat trout
7. CATCHABLES: 20,000 RB FRY/FINGERLINGS: 90,000 RB, 25,000 CT
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: ≤4.0 ppm
   AMOUNT (ROTENONE AT 5% ACT. INGRED): 124,590 lbs, 150 gal
9. METHOD OF APPLICATION: pumper boat slurry and airboat spray
10. CREW DESCRIPTION: Leader(s) Randall Osborne, Personnel ~ 18

II. PURPOSE:

The Washington Department of Fish and Wildlife (WDFW) provides many types of fisheries in response to public desires. WDFW manages both trout and warmwater recreational fisheries using multiple species of fish, providing diverse recreational angling opportunity. Public demand for, and participation in, production trout fisheries is high. These fisheries are prized as opportunities for families to recreate together, as well as providing an appropriate challenge for occasional or novice anglers. Lowland Lakes Opening Day trout fisheries provide a relaxed recreational opportunity; give anglers outdoor opportunity during the spring, summer, and fall months; and are also integral to state and local economies.

Alternatives to rehabilitation are costly or impractical. To maintain a fishery comparable to the

current fingerling-stocked trout fishery in this water with catchable-sized fish would require 90,000 to 96,000 catchable rainbow trout. Stocking catchable sized fish costs almost ten times the cost of a fry plant, and Region 1 lacks the hatchery space and water to institute a catchable fish-stocking program as a substitute for lake rehabilitation. Regardless of fish size at stocking, interspecific competition with warmwater fishes limits fish growth and condition, and trout survival is compromised due to warmwater fish predation. Ultimately, in the face of competition with, and predation by, warmwater fish, reduced trout recruitment and fish quality lead to an undesirable trout fishery.

III. INTENDED OUTCOME/MEASURE OF SUCCESS:

WDFW intends to restore Williams Lake to a popular, easily accessible trout fishery based on fingerling-stocked trout. The average harvest rates should be 4 to 5 fish/angler on the opener with a sustained harvest of 2 to 3 fish/angler for the duration of the season. Spring fry should be a minimum of 11 inches, and carryover harvest should be 10 to 15 percent of the overall harvest. Success will be measured during Opening Day and random creel contacts and biological surveys. Beneficial effects of lake rehabilitation should be expected to last approximately 6 to 8 years under current management schemes. In addition to reasons listed under Resource, Recreational and Economic Impacts, to abandon this lake as a trout fishery is to invite other illegal fish introductions across the state in trout-only managed lakes.

IV. RESOURCE IMPACTS:

1. The populations of the target species (Largemouth Bass, Pumpkinseed Sunfish, and Tench) will be severely and negatively impacted. These species presence is not desired for a fishery under the current lake management plan for Williams Lake.

2. Regional Lands, Habitat, Wildlife and Non-Game managers have been appraised of our rehabilitation plans. No unmitigated concerns have been expressed on the potential impacts to non-targeted species.

3. According to Bradbury (1986), the effects of rotenone on benthos are variable, depending on the concentrations and species. Crustaceans are most tolerant while the smaller insects are most affected. Immediate reduction of populations averages 25%, and survival doubles when access to bottom sediments exists. Benthic communities generally recover to at least pre-treatment levels within two months. Zooplankton is more severely impacted, and communities generally take two to twelve months to fully recover. While relatively tolerant of even heavy doses of rotenone, amphibians (especially larval) are at risk, and herptiles are affected somewhat less so. Almost no chance of eliminating an entire population exists.

4. During treatment, the lake will be closed to angling, and other recreational uses such as boating, and swimming will be curtailed. There will be no loss of a fishery associated with our activities. Williams Lake will be stocked to provide a fishery with catchable sized rainbow trout in the spring of 2016, prior to the Lowland Lakes Opening Day and subsequent fry/fingerling stocking of rainbow trout and cutthroat trout will sustain the fishery in future years.

5. Professional biologists and other naturalists have visited these sites frequently over the past 40 years. To our knowledge, populations of endemic, rare, threatened or otherwise listed species

will not be adversely impacted by the rehabilitation.

V. MITIGATING FOR ADVERSE IMPACTS:

1. Trout fry survival and growth for the proposed water will be greatly enhanced, and the future trout fishery will attain the previous status. No removal of dead fish is planned as the nutrient base contained therein is best returned to the lake.

2. Fall rehabilitation will not interfere with waterfowl spring nesting. The eradication of the undesirable fishes will also benefit waterfowl through increased production of invertebrates. Stocked populations of trout will not be as numerous as the current undesirable fish population.

3. Fall rehabilitation will not interfere with bald eagle spring nesting. Besides bald eagles, no Washington State Endangered, Threatened, or Sensitive species are known to inhabit this area.

4. Livestock use of the waters to be treated will not be significantly affected. The concentration of rotenone used in the treatment will be far below that considered harmful to mammals. The landowners will be notified of the rehabilitation and consequent exposure of livestock to rotenone.

5. Protective wear for the eyes, face, body and hands will be available for all purveyors of rotenone.

6. Lakes will be posted according to Department of Ecology guidelines to notify the public of the treatment and discourage the public from possessing or consuming dead fish.

VI. RECREATIONAL IMPACT:

See Section III.

Angler success should reach 4-5 fish/angler on the opener and 2-3 fish/angler sustained harvest for the duration of the season. Yearling trout should average about 11 inches. Carryovers should be expected to be about 10 to 15 percent of the catch and average 13 inches for 2-year-olds and 16 inches for 3-year-olds.

VII. ECONOMIC IMPACTS:

An estimated minimum of 20,000 trips are made to Williams Lake annually as a result of current fish management. This results in an increased economic impact totaling $ 620,000 per year (2011 dollars; based on the U.S. Fish and Wildlife Service 2011 National Survey of Fishing, Hunting, and Wildlife-associated Recreation estimate of $31 per trip). If the project is successful for 8 years it will generate a minimum of $4.96 million in economic activity. The total annual cost to plant this lake with trout fry is less than $9,500. The rehabilitation will cost the Department about $170,000 (including costs of rotenone, time, travel, etc.). The investment by the state will be realized after the first year following treatment.

Estimates for the cost of the enforcement action necessary to curtail the activity of the individuals responsible for illegal fish plants are not available. However, this cost might be looked upon as a statewide expenditure since some preventive benefit would certainly occur as perpetrators find out the Department takes illegal transport and planting of fish seriously.

VIII. RELATED MANAGEMENT ACTION:

See I.C.6,7 for fish planting data

Increased penalties and enforcement activities are desirable if WDFW is going to dissuade illegal stocking of state managed waters. Educating the public about the costs in Department dollars and time with emphasis on what WDFW might be able to accomplish with those resources would be a very worthwhile activity for O & E. This may result in stemming recruitment to this ill-advised group and turning local opinion against the offenders.

IX. PUBLIC CONTACT:

Public meetings will be held during July 2015 in Spokane, Cusick, Okanogan and Olympia to explain WDFW's 2015-16 rehabilitation proposals, assess public opinion, and address local concerns.

Initiated by: Region 1 Fisheries Management